

43. The isolated polypeptide of claim 41 comprising the GDNFR α extracellular domain sequence as set out between amino acids Asp25 and Gly427 of SEQ ID NO: 2.

44. A chimeric polypeptide comprising an amino acid sequence having at least 95% identity to the amino acid sequence as set out between amino acids Asp25 and Ser468 of SEQ ID NO: 2, fused, at its C-terminus to the N-terminus of an immunoglobulin heavy chain constant domain sequence, wherein said chimeric polypeptide is capable of binding GDNF and activating Ret tyrosine kinase.

45. The chimeric polypeptide of claim 44 wherein said amino acid sequence has at least 99% identity to the amino acid sequence as set out between amino acids Asp25 and Ser468 of SEQ ID NO: 2.

46. The chimeric polypeptide of claim 44 wherein said amino acid sequence comprises the GDNFR α extracellular domain sequence as set out between amino acids Asp25 and Gly427 of SEQ ID NO: 2.

47. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a GDNFR α polypeptide of any one of claims 41 to 43.

48. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a chimeric polypeptide of any one of claims 44 to 46.

49. The isolated nucleic acid molecule of claim 47 further comprising a promoter operably linked to the nucleic acid molecule.

50. The isolated nucleic acid molecule of claim 48 further comprising a promoter operably linked to the nucleic acid molecule.

51. An expression vector comprising the isolated nucleic acid molecule of claim 48 operably linked to control sequences recognized by a host cell transformed with the vector.

52. An expression vector comprising the isolated nucleic acid molecule of claim 49 operably linked to control sequences recognized by a host cell transformed with the vector.

53. An isolated host cell comprising the vector of claim 51.

54. An isolated host cell comprising the vector of claim 52.

55. A method of producing a GDNFR α polypeptide comprising culturing the isolated host cell of claim 53 under conditions such that said polypeptide is expressed.

56. A method of producing a chimeric polypeptide comprising culturing the isolated host cell of claim 54 under conditions such that said polypeptide is expressed.